Feed the Future Country Fact Sheet

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Tanzanian Farmer Gets Climate-Smart

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Clement Mshana practices using ripping technology on his farm.

When asked, most farmers in rural Tanzania will readily cite climate change as a leading factor in the low yields that leave them without enough income or food to feed their families. Agriculture's success is highly dependent on specific climatic conditions. Temperatures that are too high, frequent droughts and erratic rainfall and flooding all pose serious threats to food production.

Clement Mshana knows all this firsthand. He began farming over ten years ago, and increasingly unreliable rainfall was taking its toll on his yields. He didn't realize that his traditional farming methods were depleting his soil and exacerbating the effects of erratic rainfall.

To prepare his land every year, Mshana would use a disc plow—a popular, easy-to-use tool that quickly breaks down the surface of the soil. Disc plows, however, can leave soil vulnerable to wind erosion during times of low rainfall; in the 1930s, their use was even a contributing factor to the U.S. Dust Bowl.

Mshana's use of the plow year after year made the topsoil of his land increasingly less fertile and ultimately impenetrable by water or roots. Nutrients were less available to his crop because of runoff and soil erosion.

All of that changed in 2013. That's when the NAFAKA Staples Value Chain Activity, a USAID program under the Feed the Future initiative, brought climate-smart farming practices to more than 11 thousand smallholder Tanzanian farmers whose food security was threatened by insufficient rains and low yields.

The program introduced Mshana and other farmers to techniques like deep tillage, which are specifically designed to mitigate environmental degradation and increase farmer resilience to changing climate patterns. Deep tillage preserves topsoil, breaking through deeper layers in the soil from previous plowings. This significantly reduces erosion and allows soil to retain scarce water resources. As water retention increases, land becomes more fertile and crop roots grow deeper into the soil to absorb the nutrients that transform seeds into bountiful harvests.

One way to achieve deep tillage is to use rippers, plow attachments that dig deep under the soil. In Tanzania, the Feed the Future program that assisted Mshana also helped build a network of local ripping service providers. After training farmers to understand the benefits of deep tillage, Feed the Future connected them to service providers who can help sustain this climate-smart practice over the long term.

Since then, thanks to targeted information campaigns, demand has grown steadily for ripping services in Kongwa and Kiteto, the program's two focus districts. Feed the Future also promotes low-tech deep tillage solutions such as the spring jembe, a

specialized hoe that can be locally manufactured at the village level.

By switching from his disc plow to ripping, Mshana has seen a marked difference in yields. This past year, he produced 18 bags of maize on an acre of land compared to the five bags he averaged in previous years. “Many farmers like me in dry areas of Kongwa will harvest something as a result, despite poor rains,” he says.

Nafaka means grain in Swahili. The NAFAKA Staples Value Chain Activity is a USAID program under the Feed the Future initiative that aims to improve smallholder farmer productivity and profitability within the rice and maize value chains.